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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,701	03/14/2002	Jian-Ping Wang	33726-00018USPX TW/ZWL/D.	1985

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EXAMINER

VERSTEEG, STEVEN H

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/099,701

Applicant(s)

WANG ET AL.

Examiner

Steven H VerSteeg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **11** (Figure 1A); **11'**, **14'**, and **16'** (Figure 2A); and **21** (Figure 4). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4-6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,885,425 to Hsieh et al. (Hsieh).

4. For claim 1, Applicant requires a device for depositing a film onto a surface of a substrate comprising a film material source and at least one collimator between the film source and the substrate. The collimator has passages angled obliquely relative to the substrate surface such that the incident film traveling toward the substrate in a trajectory that is not substantially parallel to the oblique angle of the passages is blocked.

5. Hsieh discloses an apparatus (abstract) comprising a source material **12** and a collimator **160**. The collimator is between the substrate and the target (Figure 6). The collimator has

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passages that are oblique with respect to the substrate surface (Figure 6) so that it blocks material that is not parallel to the passages (col. 7, l. 49-60).

6. For claim 2, Applicant requires the passages to be angled in a circumferential direction of the substrate. As can be seen from Figure 6, Hsieh provides the limitation.

7. For claim 5, Applicant requires the angle of the passages to be between 0 and 90°. Hsieh discloses the angle to be less than 90° (col. 7, l. 51-56).

8. For claim 4, Applicant requires the ratio of the height and depth to be substantially uniform throughout the collimator. Figure 7 of Hsieh shows such a limitation.

9. For claim 6, Applicant requires the source to be a target and the deposition to be sputtering. Hsieh uses a target 12 in a sputtering process (abstract).

10. For claim 8, Applicant requires the collimator to be floating, on earth, or biased. Hsieh shows the collimator to be floating potential (Figure 6).

11. Claims 1-6, 8, and 10 rejected under 35 U.S.C. 102(b) as being anticipated by US 5,597,462 to Cho.

12. Claims 1, 2, 4-6, and 8 are described above. For claim 10, Applicant requires the collimator to comprise a support structure and a plurality of sheets held in relative relation by the support structure and forming passages there between. For claim 3, Applicant requires the passages to be arranged radially.

13. Cho discloses a collimator for a sputtering device (abstract) that comprises a plurality of passages at an oblique angle relative to the substrate (Figure 3). The collimator passages can be considered to be arranged radially or circumferentially (Figure 2). The depth **b** of the passages appears to be similar throughout and the angle is between 15 and 0° (Figure 3; col. 3, l. 16-18).

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The collimator is floating. The collimator is made of a support structure **15** with plates **14** and tubes **16**.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,885,425 to Hsieh et al. (Hsieh) in view of US 5,544,771 to Lee et al. (Lee).

16. For claim 9, Applicant requires the collimator to be made of conductor material, insulator material, or semiconductor material.

17. Hsieh is described above, but does not disclose the material of the collimator. Therefore, conventional collimator material is obvious.

18. Lee discloses that collimators can be made of aluminum, titanium, tungsten, silicon, or stainless steel in order to prevent generation of particles from the collimator and provide a more reliable semiconductor device and stable operation of the semiconductor device.

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Hsieh to use a collimator made of aluminum, titanium, tungsten, silicon, or stainless steel because it is conventional collimator material and results in stable operation of a sputtering device.

20. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,597,462 to Cho in view of US 5,544,771 to Lee et al. (Lee).

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21. Claim 9, Cho, and Lee are described above. Cho does not disclose the material of the collimator. Therefore, conventional collimator material is obvious.

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Cho to use a collimator made of aluminum, titanium, tungsten, silicon, or stainless steel because it is conventional collimator material and results in stable operation of a sputtering device.

23. Claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,785,763 to Onda et al. (Onda) in view of US 5,597,462 to Cho.

24. Claims 1-5 and 8-10 are described above. For claim 7, Applicant requires the film source material to be an evaporation medium and the deposition to be evaporation.

25. Onda discloses an evaporation apparatus that uses a collimator (abstract). The collimator is not oblique. The collimator should, however, be made of stainless steel (col. 5, l. 11-13).

26. Cho is described above. The benefits of using the collimator of Cho are that it allows for better deposition on sidewalls (col. 1, l. 66 – col. 2, l. 4).

27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Onda to use the collimator of Cho because of the desire to coat a substrate with sidewalls.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (703) 308-0661.

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For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Palestine Jenkins at (703) 308-3521.

For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (703) 308-0661.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (703) 305-4473. The examiner can normally be reached on Mon - Thurs (7:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
May 1, 2003